

Pan China

AGRICULTURAL RECIPROCITY

BETWEEN

America and China

Gott, George Weidman

A Contribution Toward Economic Development
and Permanent Famine Relief

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Agricultural Reciprocity

BETWEEN

America and China

Agricultural Reciprocity Promoted
through the Canton Christian College
Department of Agricultural
Investigation, Education and Practice

BULLETIN No. 5

By GEORGE WEIDMAN GROFF

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CONTENTS

	PAGE
INTENSIVE AGRICULTURE IN AMERICA AND CHINA COMPARED	5
EXTENSIVE AGRICULTURE IN AMERICA AND CHINA COMPARED	13
THE OPPORTUNITY FOR MUTUAL HELPFULNESS	20
AMERICA MUST TAKE THE INITIATIVE	23
THE CANTON CHRISTIAN COLLEGE:	23
Location	25
Climate	25
Agricultural Conditions	26
Field	27
Opportunity	27
Needs	28
THE UNIVERSITY MEDICAL SCHOOL	28
THE AGRICULTURAL DEPARTMENT IN THE CANTON CHRISTIAN COLLEGE	28
SUGGESTED FIELDS FOR SERVICE:	
Dairy and Stock	32
Agronomy	33
Forestry	33
Horticulture	33
Agricultural Chemistry	33
Agricultural Extension	34
Irrigation and Drainage	34
Landscape Architecture	34
Agricultural Education	35
THE OPINION OF AN EXPERT AGRICULTURIST	35
THE PENNSYLVANIA STATE COLLEGE MISSION TO CHINA	37
LETTERS FROM CHINESE STUDENTS	39



CANTON CHRISTIAN COLLEGE STUDENTS ENGAGED IN SCHOOL GARDEN WORK.

Many of the students prefer this form of exercise and nearly all are lovers of plant life. They possess an intuitive knowledge of each individual need and characteristic of the growing plant, but they lack the scientific training that will make progress in the agricultural development of their country possible. The Chinese are looking to the Canton Christian College to provide this training.

AGRICULTURAL RECIPROCITY between AMERICA AND CHINA

A New Era in Agricultural Development Has Suddenly Appeared

America has what China lacks and needs—EXTENSIVE AGRICULTURE.

China has what America lacks and needs—INTENSIVE AGRICULTURE.

The American *farmer* invariably thinks of his FIELD.
The Chinese *gardener* is concerned about his PLANT.

In point of agricultural development each has something to get and something to give.

Intensive Agriculture in America and China Compared.

An intensive system of cultivation and the strictest economy of plant food make it possible for the Chinese to sustain a large population on a comparatively small area of cultivated land. The scantiness of the living thus gained and the ever-present spectre of famine are not due so much to the lack of intensive farm methods as to the need of agricultural extension and means of transportation.

A mere glimpse at the land under cultivation convinces one of the success of the Chinese gardener, and gives a vision of what can some day be done when scientific knowledge and labor-saving machinery form part of his equipment.



INTENSIVE AGRICULTURE IN CHINA

Fields adjoining Canton Christian College property, which have been ridged for leeks and other winter vegetables. The sides of each bed have been carefully smeared with mud to prevent evaporation, and water is always kept in the trenches. The jars in the foreground are used for storing night soil, all of which is carefully saved and fed to plant life. Lychee trees and junks line the river banks.

An intuitive knowledge of each individual need and characteristic of the growing plant has made possible the Chinese gardener's success. He has inherited this through centuries of close, almost loving observation of plant life. Encouraged by this natural perception, he applies only the best practices in the economy of plant growth. He cheerfully expends any amount of time and energy, in order that the need of each plant may be promptly met. Early and late, at all periods of the plant's growth, he is deeply concerned for its greatest welfare.

In China seed-time and harvest are always accompanied by special diligence and rejoicing; but with the Chinese these are not the periods that demand the most careful thought and effort.

Each seedling plant, be it grain, vegetable, or fruit, is

started in a nursery environment. The seed, whether large or small, strong or weak, must germinate under none but the most favorable conditions. The seed-bed is therefore chosen with studious care for sunlight and exposure. Its soil is specially prepared, and water in sufficient quantity is provided. After the seed has been sown, the soil, which is rarely rich in itself, is coated with plant ashes, which have been carefully saved from burned grass, the principal source of fuel. Only after the bed has been evenly covered with a mulch of rice straw has the work of providing the little plant's start in life been completed.

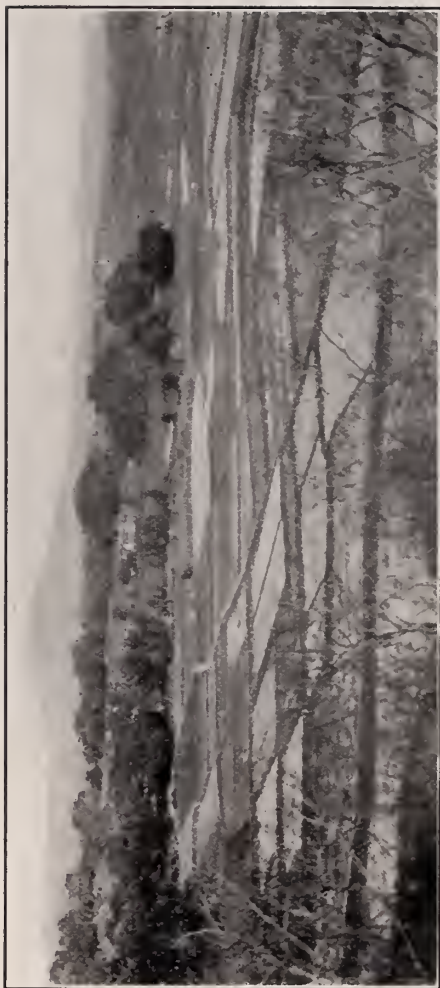
Meanwhile fields beyond are teeming with plant life; for, to secure enough food for so many, sunshine and



A CHINESE SCARE CROW

In this case it has been placed on top of a bean trellis.

space must be used to the utmost. When plants are young, they are crowded in the nursery bed. The harvesting of one crop is always followed by the immediate planting of another. A person often sees three or four crops growing in the same field or bed. The weed, that universal enemy of our American farmer, is seldom thought of in China: ages ago it was exterminated as a useless space consumer. The closest economy of sunlight and water is thus observed. The Chinese have un-



RICE FIELDS SOUTH OF COLLEGE GROUNDS. A VILLAGE IS
NESTLED AMID THE TREES.

consciously applied a scientific truth that has but recently been impressed upon the minds of the American agriculturists by one of our foremost scientists, Dr. Henry P. Armsby, who says: "The problem of food supply is in essence a problem of energy supply... The density of population which a country can support from its own resources is practically limited by the amount of solar energy which the farmer can recover in food products."

The Chinese know that sunshine and water are not enough, that as surely as men must be fed, their plants must be fed also. The Chinese farmers could not name for you the essential plant foods, nitrogen, phosphorus, and potassium, but they know the valuable raw materials which contain these elements

and which feed the plants, and they also know in what stage of the plant's development each kind of food is needed. During the days of soil preparation and seed-sowing they are busily collecting and keeping under the most favorable conditions the raw materials that contain these elements.

They are adepts in processes of fermentation that make the plant foods available for immediate assimila-



BEDS OF CANTON GINGER.

In America this product is marketed in the preserved or sugared form. A crop watcher's hut is in the center of the scene and bamboo trees are in the background. In the spring of the year the young tender shoots of this tree are marketed as "bamboo sprouts" which to the Chinese is as much of a delicacy as asparagus is to us.

tion by the plant. The large earthenware jar in which human excrement is stored is conveniently located with reference to road and field, and is deemed as important to successful gardening as is the manure or plant compost pile. Sometimes this same jar is used for dissolving the peanut or bean cake, which consists of the residue left after the oil has been extracted.



A VILLAGE POND

This is a most important feature of every village community in that it is used for irrigating and is the only source of sewage disposal. Yearly it is stocked with fish and planted with lotus lilies, the seed and roots of which are used as food. Surrounded by bamboo trees, with pagoda in the distance, this pond forms an attractive feature of the landscape.

This the Chinese recognize to be rich in plant food, but it should not be fed to the plant before it is dissolved and made ready for assimilation.

The many ponds scattered here and there over the land and often used for irrigation are prudently stocked with fish; and during the dry season, when the water is low, the mud of the pond, which is then rich in fertilizing materials from the

by-product of fish life, is smeared over the gardens, or dried and broken into small clods, and either scattered over the field or used in potting.

To the mind of the Chinese the soil is therefore not a mine of untold natural wealth. It is rather a machine into which the raw materials should be fed, and from which will then come the finished product of plant life. The Chinese dignify their gardeners with the title "fa

wong", or "flower king"; with such dignity the worth of expert gardeners should be universally recognized.

America is only now awakening to the necessity of soil conservation and a more intensive agriculture. In the past the wealth of her soil has been wasted; farms that were once productive have been abandoned; and enriching fertilizing materials have been thoughtlessly



MOUNTAIN-SIDE RICE PATCHES

These are built into steps for irrigating and to prevent the washing away of the soil.

turned into the rivers, a practice that has starved plant life, polluted the rivers, and poisoned the people. The average American farmer has lacked the patience to study the individual characteristics of his plants. But the time has come when he must follow the example of his brother across the seas and become more deeply concerned about these things, converting many of his neglected fields into veritable gardens.

In China, where such intensive methods of cultivation are employed, it is natural that plant life should take on its highest forms, and that certain districts should be noted for the production of specially attractive types. The Amoy pomelo or grape fruit, the Watlam orange, and the Lau Chau plum are all illustrations of

this fact. As one travels over the country, how interesting it is to note distinct changes in variety. How strange to find in one district a large, juicy, highly-flavored pomelo, while in the district adjoining, where the soil and climate are almost identical, a pomelo of very inferior quality. The result is not surprising. In China there is no end to varieties, but few of them have ever been systematically brought together and propagated; and yet



SOUTH CHINA FRUITS

The pear-shaped pomelo (grape fruit) in the background to the left and the large persimmon in the foreground are especially worthy of our study and introduction into the United States. On the right the lychee and lung-ngaun (dragon-eye) are fruits no variety of which has ever been successfully introduced into the United States.

many are worthy of the study of the various horticultural agencies throughout the world. The practical agriculturist can well ponder over the words of Mr. David Fairchild, agricultural explorer in charge of the foreign exploration work of the United States Department of Agriculture, when he says, "We have come to look upon China as a 'gold mine' of plant possibilities and to realize that an agricultural study of its crops and cropping systems must be made much more extensive than anything we have done heretofore"

The American farmer is fortunate in having a government that maintains specialists whose business it is to study plant types, and then to advise him as to those which are best adapted to the conditions under which he labors. He can well afford to purchase his seed from seedsmen whose reputation is dependent upon the success of their product. And his orchards are all planted from nursery-grown stock. This custom in itself maintains the distribution of only the most carefully selected and budded plants.

Contrast this with the practice in China, where seed must be privately grown or purchased without any definite guarantee that it will produce a plant of a specified type, and where the gardener cannot be certain that he is planting a tree of first-class quality unless he himself has done the budding or layering. The Chinese do not have a knowledge of even the elementary principles of Mendel's Law of Heredity, and have accomplished little in systematically developing new varieties, or even fixing the old types.

In China there is therefore much to be done for agricultural development by a study and fixation of the Chinese types of plant life and by the organization of the seed and nursery business.

Extensive Agriculture in America and China Compared.

With an intensive agriculture that excels that of any other nation, and with plant forms that indicate the development of a high type of agriculture, China is nevertheless constantly confronted with scarcity and famine; and the Christian people of America and other lands are frequently called upon for relief.

While the immediate causes of these famines are floods and droughts, both the result of deforestation, permanent relief can be immediately effected by better means of transportation, by more comprehensive

OLD METHODS OF TRANSPORTATION IN CHINA

Passenger Traffic



THE PASSENGER BOAT

which was formerly towed by men walking along the shore is now more often pulled by a modern steam launch.



THE SEDAN CHAIR,

used on country trips, and built of light bamboo for speed, is attended by two or three bearers.

OLD METHODS OF TRANSPORTATION IN CHINA
Freight Traffic



RIVER TRANSPORTATION
Boatmen rowing a load of wood up the Pearl river.



TRANSPORTATION ON LAND
A Chinese woman of Hawka class carrying a load of grass to the village where it is used for fuel.

schemes of drainage, and by an agricultural expansion leading to the development of vast tracts of uncultivated land. A complete system of railway communication for all parts of the Chinese Empire has already been planned, and American and European capitalists are ready to furnish the money. These railways will be built as soon as the present upheaval in government policies has subsided. Red Cross Society engineers have been at work on specifications for a system of dykes that will minimize the destructive force of devastating floods. The more progressive Chinese are beginning to direct their attention to outlying tracts of land, and a number of companies, interested in agricultural development, have been organized for the purpose of actually undertaking the ranch business, or the growing of grains on an extensive scale.



HARROWING A RICE FIELD

The water buffalo (caribou), and occasionally a little yellow cow, are the only draft animals. No dairy breed of cattle has ever been produced, but foreigners sometimes use the milk of this caribou.

In China, at the present time, nearly all the work is done by hand with crude and clumsy implements, and on land frequently subject to severe flood and drought.

The plowing is shallow, and the soil is often poorly broken up. The cattle industry is only in an elementary stage of development. Fertilizing materials are scarce; the rock or manufactured fertilizers are rarely used. The fight against insect pests and plant diseases is carried on largely by hand.



TILLABLE LAND

not being cultivated because of the lack of transportation and the knowledge of extensive agriculture. Large tracts of this land now lie waste, awaiting the introduction of labor-saving machinery and improved methods of agriculture.

There is a general belief that all the territory of China is in an intensive state of cultivation. On the contrary, vast stretches of land remain to be worked by new methods. It is known that "there is enough wheat land in northern China to make a second Minneapolis out of Harbin. And if the by-products of the soy bean were to be fed to cattle grazed on the wild grass lands of Mongolia, Mukden would soon develop into a second Chicago meat-packing center, and Manchuria would stand in the front rank of meat-producing countries."

What is true of the north is likewise true of the west and the southwest. In this connection, a study of the

comparative density of population in different parts of the Empire is interesting. The coast provinces have an average of 434 persons to the square mile; the Yang-tse river provinces, 465; the southwest provinces, 89; Tibet, 14; Mongolia, 2; and Manchuria, 25. The average population in the United States is about 26 persons to the square mile.

Even though the Chinese follow so many good practices in the management of the soil actually under cultivation, the fact that large areas of Chinese territory have been left untouched, in many cases to suffer the ravages of flood and drought, is proof enough that systematic effort in soil preservation has been lacking.

Probably no farm practice among the Chinese is more harmful than that of cutting away, from their upland areas, the grass that has grown during the wet summer weather. This is carried to the village, where it is used as fuel, and it is then returned to the soil in the form of ash rather than in the decomposed state. Thus the soil is yearly robbed of humus. Still more serious is the harm that comes with the heavy rains of spring, because there is no fully developed plant life to break their force. In a few years torrential floods wash away the soil which it has taken ages to form.

In China much of the soil a short distance below the surface shows every indication of retaining valuable plant food. This is due to the shallow plowing practiced by the farmers, for which their primitive plows are largely responsible. By plowing the soil deeper with more modern plows, great quantities of plant food may yet be obtained and utilized in the production of crops.

If China is to enter to-day upon an industrial development which will draw large numbers of her agricultural population from the villages to the industrial centers, and which will therefore demand the introduction of labor-saving farm methods, her industrial program must include an agricultural expansion that will develop her untouched regions and forever do away with want and

famine. Such agricultural expansion will raise the standard of living and open the way to Christian civilization.

For scientific knowledge and expert direction in this momentous movement China looks to America, whose experience and skill in this type of agriculture are widely known. The phenomenal agricultural development of the North American Continent has resulted in methods which aim mainly at the saving of labor. To the Chinese of the past economy in labor has been thought unworthy of consideration; to those of the future it will be of vital consequence. Inasmuch as America has what China needs for this new period of her development, we should be unselfish in giving immediately to



HARVESTING RICE

As soon as the grain is cut it is flailed by grasping the base of the sheaf and beating the heads against a board fastened to a tub-shaped receptacle, into which the grain falls. The straw is used as fuel or as a mulch for growing crops.

the peasantry of China the knowledge of more modern agricultural methods. By actual demonstration they must be taught the inferiority of their clumsy hoe. They must see with their own eyes the value of the sub-soil plow and even of the steam-plow. Their buffalo cow must give place to a more modern draft animal, or yield entirely to the work of machinery. The Chinese gardener can no longer depend upon a hand warfare against insect pests and plant diseases; he must resort to spraying. And the increased production resulting from the use of commercial fertilizers must be firmly impressed upon his mind by actual demonstration.

By agricultural instruction and investigation American



A KWANG-SI FARMER.

his wife, son, and servant. His son is being educated in a modern school.

farmers have been greatly blessed. They should be willing to transmit their blessings to others. We look outward and forward to the peaceful agricultural conquest of other peoples. In the United States practical labor-saving methods have been introduced and perfected until only 39 per cent of our working population, according to the census of 1900, were engaged in the production of crops; whereas it is estimated that in China from 80 to 85 per cent are thus engaged. We are moving forward with great irrigation and drainage projects, which are developing large areas of our unused territory, and which will make us capable of advising China as she expands in her agricultural development.

The Opportunity for Mutual Helpfulness

Today, as never before, America realizes the necessity for conservation and concentration in agricultural development. The farm machine will keep its place; but man must still do his share in thought and effort if the needs of the people are to be supplied. Scientific knowledge is not enough; it must be applied. America

can well afford to look to China for a study of the methods there employed, and for a knowledge of the varieties of plants that have been grown by the Chinese for many centuries. A blessing will thus be ours in any effort that we make to intermingle with the Chinese. American and Chinese farmers can each teach the other some useful lessons.

China is a country chiefly of farmers and villagers, whose lack of contact with the outside world and with human progress has kept them from enjoying all the possibilities and blessings of life that await them. In China village life is probably more important and influential than in any other country in the world. The rural population is therefore the best point of contact for a lasting influence upon the people.

The integrity of China, which means peace in the Far East, is dependent in a large measure upon her increase in agricultural production at the very time that new



A TYPICAL CHINESE VILLAGE.

the center of farm life. The open court in front of the temple and the pond, as in the lower left-hand corner of this picture, are prominent features of almost every village. The houses are built of a mud compost with tiled roofs, and the streets are narrow.

industries are being introduced and developed. Such development will be impossible without the introduction of modern education and practice. The industrial centers will draw large numbers of the rural population to the cities and towns, which will necessitate the introduction of machinery and of scientific knowledge of agriculture in order to increase agricultural production. To do away with the present constantly recurring famines and



A VILLAGE MARKET SCENE

One of the most prominent features of the village market is the cookery—a place where the moving public buy their meals and eat them squatting on the ground.

at the same time reduce the agricultural population, China must adopt modern methods of agriculture and develop the large areas of now uncultivated land.

In order to carry on in China any scientific agricultural development, and make its application effectual, it will be necessary to train Chinese agriculturists and

teachers. At the present time a thoroughly modern scientific agricultural training cannot be obtained in China. A few of the Chinese are studying the subject abroad, but not under conditions well adapted to China. The present need is therefore for a strong School of Agriculture located within Chinese territory. The Agricultural Mission to China is timely and important.

America Must Take the Initiative

At this time of crisis in China, will America prove the friend that China needs? In the past we have exerted a beneficial influence upon the Chinese Empire. We have not encroached upon her territory, but have stood for her integrity as a nation. We have remitted the Boxer indemnity for the education of her youth. Within her own territory we have sought to help her through the Christian chapel, school, and hospital; and in time of flood and famine have sent generous supplies of food and clothing. But at this time of China's still greater need of education and of agricultural and industrial development, America should take the part of the big brother and help China to her feet.



FIRST PERMANENT DORMITORY OF THE CANTON CHRISTIAN COLLEGE

This building was built with funds subscribed by the Chinese. They have built another of this same type, and money has been subscribed for still a third building. The grading and layout of walks is preparatory to the planting of trees and shrubs and the development of the college campus. The students are at evening drill.

The Canton Christian College

The Canton Christian College is an undenominational, Christian, missionary institution, under a Board of Trustees, incorporated under the Regents of New York State, with assets of \$200,000 and a yearly budget of about \$25,000. Its work is elementary, preparatory,



Second Permanent Dormitory
(In course of construction)

First Permanent
Dormitory

Temporary
Buildings

White Cloud
Mountain

Martin Hall

"Gould" and "McCormick"
Staff Residences

PANORAMIC VIEW OF CANTON CHRISTIAN COLLEGE PROPERTY.



THE CANTON CHRISTIAN COLLEGE SITE

These buildings were hastily built with walls one brick thick, and are now being replaced by the permanent buildings. The grounds await considerable grading before the campus can be developed.

collegiate, and technical, with about 200 students and a faculty of 14 American and 18 Chinese professors and instructors. There are six permanent buildings and a campus of 48 acres located across the river from Canton.

"The proposed Agricultural Department in that noble institution, the Canton Christian College, may be of great service in bringing about, between our agriculture and that of China, a beneficial exchange of points of superiority.

"Such a Department will eventually be able to give practical aid to Chinese farmers and to open a path of hope to educated young men, eager to promote the economic regeneration of their country. Nothing could be suggested more likely to convince the Chinese of our good-will and to dispose them to listen to whatever we offer them in the way of moral or religious ideas."

From a letter by Professor Edward A. Ross, Professor of Sociology in the University of Wisconsin.

Location. The Canton Christian College is located at Canton, the commercial, literary, and official metropolis of South China, with a population of 1,500,000, situated ninety miles up the Pearl river from Hongkong. It is the nearest Chinese city to American territory in the Philippines.

Climate. South China has the most advantageous climate in all China for agricultural effort. The two Kwang provinces are traversed by the line of the Tropic of Cancer, and there is found and grown there a wide

range of temperate and tropical plants. The climate permits of the growth of plants throughout the entire year, and live stock demands but little attention in the way of protection from the weather.

Agricultural Conditions. Kwang Tung and Kwang Si are primarily agricultural provinces. The former is cultivated intensively, and the latter extensively. Kwang Tung has an area of 100,000 square miles and a



SINKING AN ARTESIAN WELL ON COLLEGE
GROUNDS

dense population of 319 persons to the square mile. Warm climate, abundant moisture in season, and fertile soil in the lower areas, together with the plant-loving and industrious habits of the people, make it the most productive section in the Empire, if not in the world. Here are produced rice, silk, sugar-cane, indigo, tea, tobacco, and a wide variety of temperate and tropical vegetables, grains, and fruits.

Kwang Si, with an area of 77,220 square miles, is the most sparsely populated province of the country, estimates showing only sixty-six persons to the square mile.

The province is abundantly watered by three streams, which comprise three water basins, each of which is only very partially developed. Kwang Si is known as "the granary of Kwang Tung"; here are grown paying crops of wheat, rice, millet, maize, and buckwheat. This province produces about the same fruits and vegetables that are found in Kwang Tung, though they are often of quite a different variety.

In both these provinces, though especially in the latter, vast tracts of uncultivated land remain to be developed. When the proposed railroads are built, there can be no doubt that these two provinces will be called upon to largely supply the market needs of the north.

Field. The field is practically untouched in the work of agricultural education and investigation.

Opportunity. There is a widespread desire for knowledge of western agricultural methods. Agricultural investigation and development are possible because of the progressive character of the Cantonese people. "No single agency can compare with the superior advantages offered by Christian education to mould the new civilization of China's millions."



A SWIMMING CONTEST

No Canton Christian College student is permitted to row on the river unless he can swim at least fifty yards. The trees in the background are those of the lychee, a fruit which the Chinese laundryman of America often presents to his patrons. They are often miscalled "Chinese nuts."



MARTIN HALL

with students and teachers assembled on verandas. This is a reinforced concrete building. It is fire, ant and typhoon proof.

Needs. The Agricultural Department of the Canton Christian College needs the hearty cooperation of American agricultural colleges and experiment stations, and of all friends of agricultural development in its effort to establish a thorough course of Agricultural Education and Extension, including buildings, equipment, teachers, and funds for the running expenses of the department.

The University Medical School. The University Medical School is an institution closely affiliated with the Canton Christian College, maintained by the Christian Association of the University of Pennsylvania, for the purpose of graduating skilled Chinese physicians, thoroughly trained in western scientific medicine. It has assets to the amount of \$23,500 and a yearly budget of about \$11,000. Its staff consists of six American and two Chinese professors and instructors.

The Agricultural Department in the Canton Christian College

For several years the Canton Christian College has been endeavoring to establish an Agricultural Department. It has received substantial assistance from the



WALKING PARTY OF CANTON CHRISTIAN COLLEGE STUDENTS

The Chinese are born students of nature, and these walks are made an occasion for observation. A number of these students wish to pursue an agricultural course. Some are now in America completing their education, while still others are teaching in China.

Pennsylvania State College Young Men's Christian Association toward the support of a teacher of agriculture. Elementary agricultural education has been introduced in the preparatory school, and experimental gardens for observation and practice have been established on the College grounds. Investigations of the agricultural needs and possibilities of the two Kwang Provinces have been carried on, and some plants have been introduced into China and others into America.



CULTIVATED LAND ADJOINING CANTON CHRISTIAN COLLEGE PROPERTY

which it proposes to purchase for agricultural purposes. This land is fertile and carefully graded off into beds, each at a level of from one to three feet above the other so as to provide for irrigating. Note the cement white-ant proof fence posts and barbwire fence at the base of the photograph, which mark the boundary of the college property. The trees in the upper right-hand corner hide the village of Sun Fung Wong. Crop-watchers' thatched huts are scattered here and there over the land.

With this start the College is now in a position:—

1. To advance its agricultural investigations by introducing American methods adaptable to China, by showing what Chinese methods are adaptable to America, by furnishing American plants and animals adaptable to China, and by introducing into the United States Chinese plants and animals adaptable to America.



ZIZANIA LATIFOLIA.
CHINESE WILD RICE OR "KAU SUN."
Chinese Wild Rice.

This plant, photographed in the green-houses of the Department of Agriculture at Washington, is one of a number brought into the United States, under the supervision of the Canton Christian College, by one of their former students, Mr. Chan Chow.

The American species of wild rice is strictly an annual, reproducing itself only by seed. The Canton plant is a perennial, reproducing itself chiefly by rhizomes. This Canton species has never been observed to produce seed under cultivation except in the Washington cultures, where this one plant has grown several panicles, one of which is seen at the top of the stem in the upper right hand corner of the photograph.

"Kau Sun"—A Chinese Vegetable.

In China the solid base of the stem of this wild rice plant is gathered in early spring when it is still very tender, cut into pieces two to three inches long, and marketed as a substitute for "bamboo sprouts." It is highly relished for its peculiar richness and delicacy of flavor. Westerners boil it and serve it with melted butter or with a cream dressing. The Chinese prefer it stewed with meat.

2. To promote its agricultural education in its Lower and Upper Schools, and to instruct the peasantry of China through lectures and demonstrations; and, through the circulation of pamphlets and bulletins, to inform the agriculturists of other lands what China has learned by ages of intensive cultivation.

3. To establish agricultural practice. Its own students are working in the gardens. It is preparing to establish nurseries and gardens for the fixing and propagation of the best varieties, and is lending aid to Chinese agricultural development companies.

Suggested Fields for Service

Dairy and Stock. Agricultural development in China has been chiefly lacking in the domestication of animals. The use of milk would greatly improve living conditions both among natives and foreigners.



A TRANSPORTABLE DUCK FARM

A flock of this size is cared for by one or two attendants, who daily search for new feeding ground on submerged rice fields, canals, or other places. In the evening by a peculiar call of the attendant the ducks gather on the boat and are given a little grain. It is said that as an incentive to have them hurry the last bird is given nothing to eat.

Agronomy. Famines in China can be overcome and the standard of living greatly raised by developing the extensive areas of uncultivated land, by the use of farm machinery, and by discontinuing some of the bad practices of soil management.

Forestry. Floods and drought in China are largely due to the deforestation of the mountains. Much is therefore to be done for China in the work of reforestation.



A FOG-OBSCURED SCENE IN THE CANTON DELTA.

Photographed from Loh Fau, the most renowned mountain of South China (4,000 feet high). In the lower right-hand corner Wash Au Toi is one of the many famous monasteries of this district. In China the monks only are careful to preserve the forests, and one finds many beautiful spots near their temples. Beyond this wooded spot are the uncultivated foothills and watery rice fields.

Horticulture. This is the logical department with which to begin agricultural educational work. Horticulture in China has reached a high stage of development as far as the working of the soil is concerned. But the propagation and fixation of varieties are in a chaotic condition.

Agricultural Chemistry. This department is needed to increase the knowledge and use of commercial fertilizers, and of chemicals for the combating of insect

enemies and plant diseases. A profitable investigation of the present methods of soil management and fertilizing materials now in use in China could also be carried on.

Agricultural Extension. An unlimited field is open to this department for most effectual and beneficent Christian work among the peasantry. Its success is largely dependent upon the work of the other departments.



A COMMON TYPE OF TREAD-POWER IRRIGATING PUMP

These men are pumping water from a canal and starting it on its way down over a series of rice fields.

Irrigation and Drainage. The Chinese are born irrigators, wasting little water. They know nothing of large irrigation projects and need to be taught how to drain much of their land, which is now subject to excess water supply. Much is therefore to be learned and much to be taught concerning this subject.

Landscape Architecture. The Chinese type of landscape development ought to be studied before it becomes too greatly influenced by that of the West. In many respects it can be improved, but much is attractive and



BANYAN TREES

of this type are often used in adorning temple grounds or as a setting for a village entrance. Unlike the banyan of India, the aerial roots never reach to the ground and it is therefore called "bastard banyan." It is propagated by cuttings.

worthy of consideration. The campus at the Canton Christian College offers exceptional opportunity for the working out of an attractive development. Such a department would be of great influence in the new planning and laying out of cities and homes. Public parks are almost unknown in China.

Agricultural Education. Upon this department will rest the development of agricultural education, both elementary and collegiate.

The Opinion of an Expert Agriculturist

"It could not be other than a matter of the highest industrial, educational, and social importance to all nations if there might be brought to them a full and accurate account of all those conditions which have made it possible for such dense populations to be maintained so largely upon the products of Chinese, Korean, and Japanese soils. Many of the steps, phases, and practices

through which this evolution has passed are irrevocably buried in the past, but such remarkable maintenance efficiency attained centuries ago and projected into the present with little apparent decadence, merits the most profound study and the time is fully ripe when it should be made. Living as we are in the morning of a century of transition from isolated to cosmopolitan national life, when profound readjustments, industrial, educational and social, must result, such an investigation cannot be made too soon. It is high time for each nation to study the others and by mutual agreement and co-operative effort, the results of such studies should become available to all concerned, made so in the spirit that each should become co-ordinate and mutually helpful component factors in the world's progress.

"One very appropriate and immensely helpful means for attacking this problem, and which should prove mutually helpful to citizen and state, would be for the higher educational institutions of all nations, instead of exchanging courtesies through their baseball teams, to send select bodies of their best students under competent leadership and by international agreement, both east and west, organizing therefrom investigating bodies each containing components of the eastern and western civilization and whose purpose it should be to study specifically set problems. Such a movement, well conceived and directed, manned by the most capable young men, should create an international acquaintance and spread broadcast a body of important knowledge which would develop as the young men mature and contribute immensely toward world peace and world progress. If some broad plan of international effort such as is here suggested were organized, the expense of maintenance might well be met by diverting so much as is needful from the large sums set aside for the expansion of navies; for such steps as these, taken in the interest of world uplift and world peace, could not fail to be more efficacious and less expensive than increase in fighting equipment.



GRADUATES OF THE CANTON CHRISTIAN COLLEGE MIDDLE SCHOOL.

The two on the left passed the government examinations and are now at the University of Michigan under the Indemnity Scholarship Fund. The third from the left is a medical student in the University Medical School. The one on the right is Principal of a Model Primary School, a work which has been organized and is fully supported by the Canton Christian College Y. M. C. A. Many students of this type are now awaiting the introduction of an Agricultural Course.

It would cultivate the spirit of pulling together and of a square deal rather than one of holding aloof and of striving to gain unneighborly advantage."*

The Pennsylvania State College Mission to China

The Pennsylvania State College work has been definitely organized and the Horticultural Department in this proposed School of Agriculture in the Canton Christian College is under the supervision of a Directing Committee of Pennsylvania State College men living at State College,

*From the introduction to "Farmers of Forty Centuries," the last work of F. H. King, Professor of Agricultural Physics in the University of Wisconsin, and chief of the Division of Soil Management, United States Department of Agriculture.

Those who are interested in Chinese agriculture and its message to the Western world are recommended to read this most scholarly work by Prof. King. The price of this book is \$2.50. Through the kindness of Mrs. King it can be purchased from the Directing Committee of the Pennsylvania State College Mission to China, the Agent's profits to be devoted to the work of the Mission. Orders should be sent to Mr. Ralph L. Watts, State College, Pa.

Pa., and the field and instructional work will be carried on by men specially trained in the School of Agriculture of the Pennsylvania State College. There is also an Advisory Board consisting of alumni, trustees, members of the faculty, and prominent agriculturists.

It is the purpose of this Mission, through the medium



THE SHANTUNG ROSE

This rose is propagated in the northern province of Shantung and cuttings are yearly brought to the southern provinces, where they produce exceptional flowers.

of agricultural investigation, education, and practice, to aid Christian Missions at work in China in promoting industrial self-sufficiency and the growth of Christian character, fellowship, and work among the Chinese.

Investigational.

To carry on in China, especially in the field of horticulture, such investigation as will lead to a better understanding of Chinese methods of gardening and a fuller knowledge of Chinese plant types.

Educational. To assist the Canton Christian College in its work of agricultural education among the Chinese by placing on its faculty men specially trained in agriculture and capable of carrying on horticultural instruction and demonstration.

Practical. To establish on the Canton Christian College campus nurseries and gardens for the collection and the propagation of the best plant types, both for

practical demonstration to the Chinese of the most modern nursery and seed-growing methods, and for the distribution of well-selected seeds and plants.

Co-operative. To establish a Department of Horticulture at the Canton Christian College in the hope that other American colleges will found similar Missions at the same College in other branches of Agriculture, and thus help to give the Chinese Empire the benefit of an efficient and well equipped School of Agriculture.

Letters from Chinese Students

"Dear Mr. Groff:—

"It is almost one semester while I am in school this year. As I am studying the subject of Chemistry it seems very interesting to me. I always asked myself, what shall I do and where shall I go next year? The trouble is there are no good agricultural schools in my native land. Therefore the only way to get education in agriculture is to go to the country which is well developed in this work. Two weeks ago I and Mr. L. had a trip to Sam Shui. We saw a good deal of land there is wasted. The people there pay no attention to improve their farms and products. Some of them are getting enough just to support their families. Others even get enough to support themselves. When the dry season comes, they suffer for water. When the wet season comes, they do not know how to drain the water. Many times they fail in their crops. They only say it is fortunate or unfortunate. When I came to myself, nothing I can do besides agricultural work, and there is no other work which is so important as the condition of China now. The question of studying in foreign country is not easy to answer. As far as I know it requires a large amount of expenses for years. So if there will be no special chance I am sure I cannot reach the point. The hope which I expected is upon you. You know my condition better than anyone else. Hoping you will send me informations whenever convenient. The work of the garden is going on well. Each month there is a gain of 20 or 15 dollars."

Sincerely yours,

A student at the Canton Christian College.

Dear Mr. Groff:—

Yesterday I have sent you a copy of the constitution of our agricultural company which was written in Chinese ... I wish I

would translate it into English if I had time enough. But one special point I want to make more clear to you is that the purpose of our company is to develop the agricultural work in China in order to support the establishment of schools at the vicinity of our farms. This is what we, members of the company, devote to do. Moreover there is something more important which is to bring the Light of Christ into the soul of our people whom we shall get a closer touch with. You know when we can give them work to do on the farms and when we can open schools for the boys and girls there will be more opportunity for us to make friends with them; then if we preach, the influence will be more effective than that if we simply talk nicely without actually doing anything helpful to them....

I realize ourselves as men of inexperience and that our work seems to be a great task. It seems that we are unlikely to carry out such a great work, but I want to tell you that we do it not depending on our own wisdom, or experience, but on God's power. We believe that our purpose is right and that God will help us. Therefore if we succeed we should not be proud; or if we fail we should not be sorry. Give us advises whenever you can. If anything in the constitution you don't understand I will answer you at your request....

Very sincerely yours,



RECREATION PERIOD—STUDENTS OF THE CANTON CHRISTIAN COLLEGE IN THEIR SCHOOL GARDEN.

A Suggestion for Helpfulness

If you know of anyone who would be interested in **“Agricultural Reciprocity between America and China”** and who would be in position either to promote this work or to assist financially, *you can help* by filling in their names and addresses and sending this sheet to

THE TRUSTEES OF
THE CANTON CHRISTIAN COLLEGE
DEPARTMENT OF AGRICULTURE
156 Fifth Avenue, New York City

(After each name write **P** for promote and **F** for financial help)

NAMES

ADDRESSES

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The foregoing names have been furnished by

Address



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JUN 20 '72

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